

# **I. Introduction**

## **A. General**

Nebraska signed an agreement with the Atomic Energy Commission (now the U.S. Nuclear Regulatory Commission (NRC)) on October 1, 1966. The agreement gave Nebraska the authority to license and regulate radioactive material users in the State of Nebraska. With the exception of nuclear power plants and federally controlled facilities, the Nebraska Department of Health and Human Services Regulation and Licensure (HHS R & L) or (Agency), regulates the possession and use of radioactive material within the state. The NRC has signed similar agreements with other states. These states are referred to as Agreement States.

Under authority of the “Revised Statutes of Nebraska 1943 Article 35 (the Radiation Control Act), the Agency issues licenses to users of radioactive material and performs inspections to ensure compliance with Title 180 Nebraska Administrative Code (NAC) Nebraska Regulations for Control of Radiation.

This document, “Regulatory Guide 3.13, "Guidance for Radioactive Material – Fixed Gauge Licenses" is intended for use by applicants, licensees, HHS R & L license staff reviewers. It supersedes the guidance for applicants and licensees previously found in Regulatory Guide 3.13 (Rev 1) 8-1-92, "Guide for the Preparation of Applications for Licenses for the use of Sealed Sources in Non-Portable Gauging Devices.”

This guide uses current information found in the U.S. Nuclear Regulatory Commissions (NRC) NUREG 1556, Vol. 4 "Consolidated Guidance about Materials Licenses: Program-Specific Guidance about Fixed Gauge Licenses" and other sources.

## **B. Purpose of Guide**

This guide provides instructions for preparing a fixed gauge license application as well as criteria for evaluating fixed gauges license applications. It is not intended to address the research and development of fixed gauges or the commercial aspects of manufacturing, distribution, and service of such devices. Within this document, the phrases or terms, “fixed gauge,” “gauging devices,” or “gauges” are used interchangeably.

Applicants or licensees wishing to renew their licenses should submit a complete application according to this Regulatory Guide.

Regulatory Guide 3.13, "Radioactive Material - Guidance for Fixed Gauge Licenses", is also available electronically by visiting the Agency’s Radioactive Materials Page (<http://www.hhs.state.ne.us/puh/end/rad/radindex.htm>).

This guide identifies the information needed to complete Form NRH 5 (Appendix A), "Application for Material License," for the use of sealed sources in fixed gauging devices.

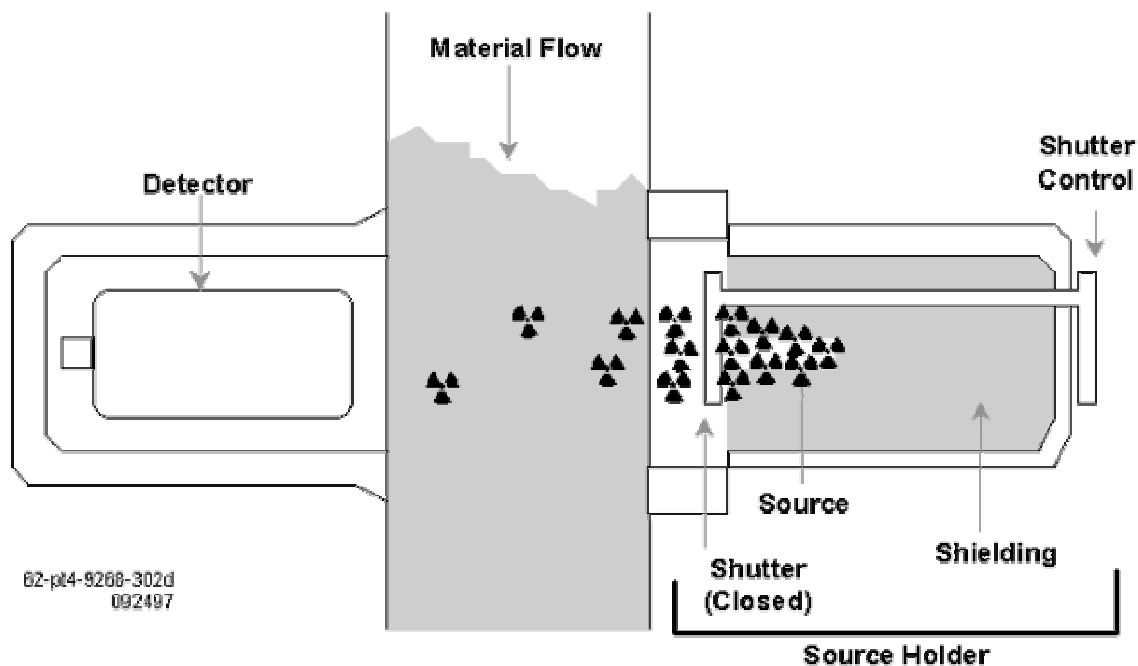
Appendix B “Supporting Information Requested in Items 4 through 14 of NRH Form 5” should be used as an attachment to Appendix A for fixed gauge licenses. The applicant should use this Appendix B as a checklist to ensure completeness of their submittal. Each sections of the checklist refers to a number on the application (Appendix A) and more detailed information about what is needed can be found in Part III of this Regulatory Guide.

If the applicant needs to provide supplemental information to Appendix B make sure that the supplemental information and attachments each have the applicants name and license number (if a renewal), item number which it relates to on Appendix B, page number and application date.

Appendixes C through X provide examples, models and additional information that will be needed to complete Appendix A and B. Appendix C is a sample fixed gauge license; it contains the conditions most often found on these licenses, although not all licenses will have all conditions.

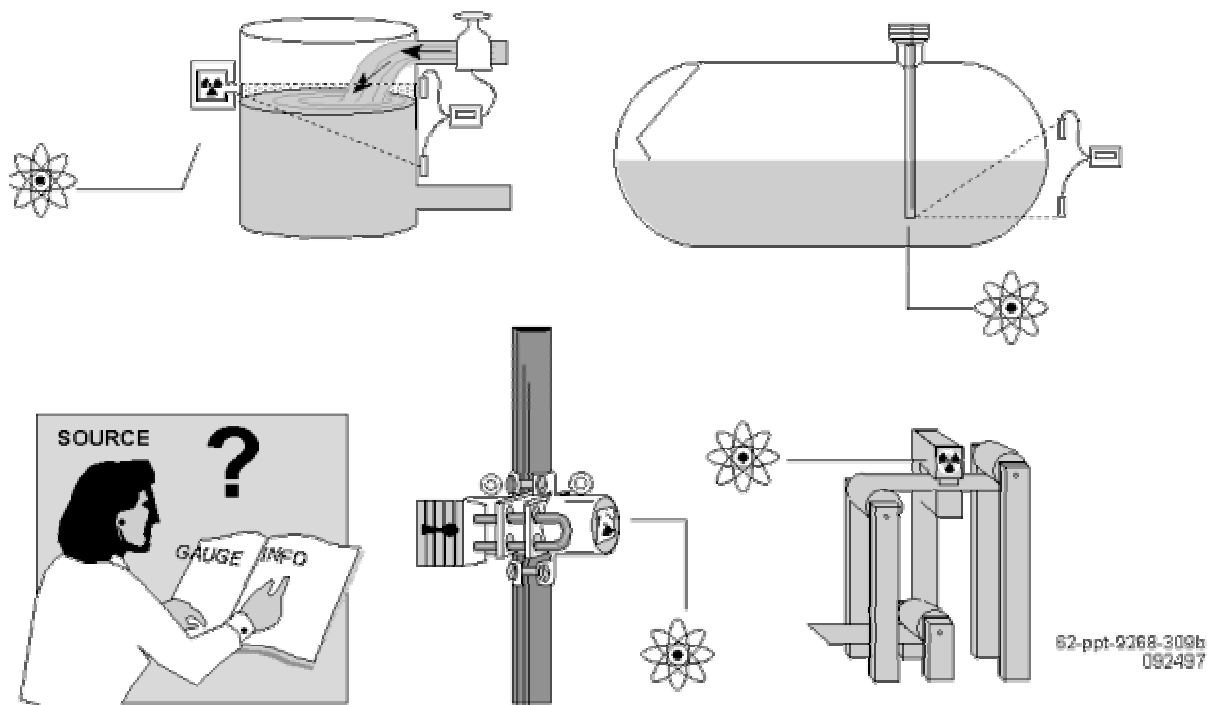
Appendix D is a checklist that Agency staff will use to review applications and applicants can use to check for completeness. It typically takes 60-90 days for a license to be issued, particularly if additional information must be requested.

The information submitted in the application must be sufficient to demonstrate that proposed equipment, facilities, personnel and procedures are adequate to protect the health and property of the citizens of Nebraska according to the Agency’s guidelines. Submission of incomplete or inadequate information will result in delays in the approval process for the license. Additional information will be requested when necessary to ensure that an adequate radiation safety program has been established. Such requests for additional information will delay completion of the application’s review and may be avoided by a thorough study of the regulations and these instructions prior to submitting the application.



**FIGURE 1 Fixed Gauge Basic Design Features. Cutaway of a typical fixed gauge diagramming the basic design features: the source, source holder, detector, shutter, shutter control or on-off mechanism, and shielding.**

This regulatory guide addresses a variety of radiation safety issues associated with fixed gauges of many designs. Figure 1 is a cutaway diagram of a typical fixed gauge showing basic design features. Figure 2 illustrates various designs of fixed gauges based, in part, on their intended use and the location of the radioactive source within the gauges. Typically gauges are used for process control (e.g., to measure the thickness of paper, the density of coal, the level of material in vessels and tanks, and volumetric flow rate). Because of differences in design, manufacturers provide appropriate instructions and recommendations for proper operation and maintenance. In addition, with gauges of varying designs, the sealed sources may be oriented in different locations within the devices, resulting in different radiation safety problems.



**FIGURE 2 Where is the Radioactive Source? The wide variety of fixed gauge designs results in different radiation safety considerations.**

Radioactive Material Licensees from other agreement states and NRC licensees who wish to conduct operations at temporary job sites in Nebraska should contact the Agency. A licensee should request authorization well in advance of scheduled use to ensure compliance with Nebraska's reciprocity requirements.

### **C. Management Responsibility**

The Agency recognizes that effective radiation safety program management is vital to achieving safe and compliant operations. The Agency also believes that consistent compliance with its regulations provides reasonable assurance that licensed activities will be conducted safely.

To ensure adequate management involvement, a management representative must sign the submitted application acknowledging management's commitments and responsibility for the following:

- Radiation safety, security and control of radioactive materials, and compliance with regulations;
- Completeness and accuracy of the radiation safety records and information provided.
- Knowledge about the contents of the license and application;
- Committing adequate resources (including space, equipment, personnel, time, and if needed, contractors) to the radiation protection program to ensure that public and worker safety is protected from radiation hazards and compliance with regulations is maintained; and

- Selecting and assigning a qualified individual to serve as the Radiation Safety Officer (RSO) for their licensed activities.

Management must be committed to the As Low As Reasonably Achievable (ALARA) philosophy of maintaining occupational and public radiation dose as low as reasonably achievable.

- All personnel using fixed gauges will be made aware of management's commitment to the ALARA philosophy and they will be instructed in the procedures necessary to keep their exposures as low as possible.
- The Radiation Safety Officer will be delegated authority to ensure adherence to ALARA principles. Management will support the RSO in stances where this authority must be asserted.
- All reasonable modifications will be made to procedures, equipment and facilities to reduce exposures, unless the cost is considered to be unjustified. Management will be prepared to describe the reasons for not implementing modifications that have been recommended.

## **D. Applicable Regulations**

The following portions of the regulations are applicable to the use of radioactive material in the form of sealed sources in fixed devices and should be used in conjunction with this guide:

- 180 NAC 1 "General Provisions"
- 180 NAC 3 "Licensing of Radioactive Material"
- 180 NAC 4 "Standards for Protection Against Radiation"
- 180 NAC 10 "Notices, Instructions and Reports to Workers: Inspections"
- 180 NAC 13 "Transportation of Radioactive Material"
- 180 NAC 15 "Training and Experience Requirements for Use of Radiation Sources"
- 180 NAC 17 "Enforcement of Radiation Control Act and Rights to Hearing Procedures for Licensees and Registrants; Penalties"
- 180 NAC 18 "Fees for Certificates of Registration, Radioactive Material(s) Licenses, Environmental Surveillance, Emergency Response and other Regulatory Services"

The Agency amends the regulations periodically. Notification of changes will be provided as they occur; when applicable, the changes should be incorporated into the radiation safety program.

To request copies of Nebraska's Title 180 call Health and Human Services Regulation and Licensure, Radioactive Materials Program at (402) 471-2079 or FAX (402) 471-0169 or write to Health and Human Services Regulation and Licensure, Radioactive Materials Program, P.O. Box 95007, Lincoln, NE 68509. A current copy of Title 180, is also available on the Internet at <http://www.hhs.state.ne.us/reg/t180.htm>

To request a federal publication, call GPO's order desk in Washington, DC at (202) 512-1800. Order the two-volume bound version of Title 10, Code of Federal Regulations, Parts 0-50 and 51-199 from the GPO, Superintendent of Documents, Post Office Box 371954, Pittsburgh,

Pennsylvania 15250-7954. They are also available on the Internet at <http://www.nrc.gov/reading-rm/doc-collections/cfr>

Copies of U.S. Department of Transportation (DOT) regulations, 49 CFR can be ordered from the U.S. Government Printing Office by calling (904) 353-0569. The DOT's regulations are also available on the Internet at <http://www.access.gpo.gov/nara/cfr/index.html>